CLAIMS:

1. A method of reducing a peak-to-mean ratio of a multi-carrier signal comprising the steps of:

generating a residual signal from a multicarrier signal, the residual signal representing a difference between the multicarrier signal and a hard-clipped multicarrier signal;

applying a least squares function to the residual signal for at least one carrier of the multi-carrier signal, thereby generating a minimized residual signal for the at least one carrier; and

combining the minimized residual signals and the multicarrier signal.

2. A method according to claim 1 further comprising the step of, prior to the step of combining the minimized residual signals, filtering at least one minimized residual signal.

3. A method according to claim 1 further comprising the step of delaying the multicarrier signal, wherein the delayed multicarrier signal is combined with the minimized residual signal.

4. A method according to claim 1, wherein the step of generating the residual signal includes a step of clipping the multicarrier signal to a predetermined level to thereby generate the hard-clipped multicarrier signal.

5. A method according to claim 2, wherein the step of filtering comprises complex filtering.

6. A method according to claim 5, wherein the step of filtering comprises a step of multiplying the residual signal by a projection matrix of a spanned signal space of the at least one carrier.

7. A method according to claim 5, wherein the step of filtering includes the steps of applying to the residual signal, for at least one carrier, a matrix function, a sampling function, a filtering function and an interpolation function.

8. Apparatus for reducing a peak-to-mean ratio of a multi-carrier signal, the apparatus comprising:

generating means for generating a residual signal from a multicarrier signal, the residual signal representing a difference between the multicarrier signal and a hard-clipped multicarrier signal;

applying means for applying a least squares function to the residual signal for at least one carrier of the multi-carrier signal, thereby generating a minimized residual signal for the at least one carrier; and

combining means for combining the minimized residual signals and the multicarrier signal.

9. Apparatus according to claim 8, further comprising means for filtering each minimized residual signal prior to implementation of the combining step.

10. Apparatus according to claim 9, further comprising delaying means for delaying the multicarrier signal, wherein the delayed multicarrier signal is combined with the minimized residual signals.

11. Apparatus according to claim 9, wherein the generating means for generating the residual signal includes means for clipping the multicarrier signal to a predetermined level to thereby generate the hard-clipped multicarrier signal.

12. Apparatus according to claim 10, wherein the filtering means comprises a complex filter.

13. Apparatus according to claim 12, wherein the filtering means comprises multiplying means for multiplying the residual signal by a projection matrix of a spanned signal space of the at least one carrier.

14. Apparatus according to claim 13, wherein the step of filtering includes applying means for applying to the residual signal, for at least one carrier, a matrix function, a sampling function, a filtering function and an interpolation function.

15. A mobile communication system including a transmitter apparatus configured to reduce a peak-to-mean ratio of a multi-carrier signal, the mobile communication system comprising:

generating means for generating a residual signal from a multicarrier signal, the residual signal representing a difference between the multicarrier signal and a hard-clipped multicarrier signal;

applying means for applying a least squares function to the residual signal for at least one carrier of the multi-carrier signal, thereby generating a minimized residual signal for the at least one carrier; and

combining means for combining the minimized residual signals and the multicarrier signal.

16. The mobile communication system according to claim 15, wherein said generating means, said applying means and said combining means are implemented in a GSM EDGE mobile communication system.